

## REMARKS

This is intended as a full and complete response to the Office Action dated October 29, 2004, having a shortened statutory period for response set to expire on January 29, 2005. Please reconsider the claims pending in the application for reasons discussed below.

Claims 1, 3-9, and 24-27 remain pending in the Application after entry of this response. Claims 1 and 6 have been amended, claim 2 has been cancelled, and new claim 27 has been added. No new matter has been added by the amendments or new claims.

### ***Claim Rejections – 35 USC § 102***

Claims 1-9 and 24-26 stand rejected under 35 USC 102(b) as being anticipated by *Rallis* (US 6,413,326). *Rallis* does not teach, suggest, or disclose a coupling, comprising: “(a) a ... blank ... brought to a Rockwell hardness of at least about 27 HRC; [and] (c) fully cold rolled threads on an inner surface of said coupling blank.” For convenience, discussion of *Rallis* will be divided into two sections: Background (col. 1, line 20-col. 2, line 35) and Invention (the rest of the reference).

Referring to the Background section, *Rallis* discloses:

“[H]igher strength [roll-threaded] couplings have not been developed beyond a strength level of about 23 HRC.” (*Rallis*, col. 1, lines 61-63.)

Referring to the Invention section, *Rallis* teaches a modified case hardening of the threads for fatigue resistance versus the full cold rolling of claim 1 because *Rallis* teaches machining the threads before heat treatment and modifying the subsequent heat treatment to prevent distortion that accompanies conventional case hardening. (*Rallis*, col. 4, lines 43-59; col.5, lines 17-25; and col. 6, lines 20-26.) *Rallis*’ modified case hardened coupling does not have the distinctive structural characteristics accompanying fully cold rolled threads of cold-rolling induced enlargement of the thread root radius (leading to reduction of stress concentration in the threads) and a grain flow

pattern favorable to fatigue resistance. (Richard W. Hertzberg, *Deformation and Fracture Mechanics of Engineering Materials* 578 (1996).)

Therefore, claim 1 is patentable over *Rallis*. Claims 3-9 and 24-27 are also patentable over *Rallis* since they depend from claim 1.

### ***Claim Rejections – 35 USC § 103***

Claims 1-9 and 24-26 stand rejected under 35 U.S.C. 103(a) as being unpatentable over *Hermanson* (US 5,334,268) in view of *Rallis*. As discussed above, *Rallis* discloses a modified case hardening approach. *Hermanson* discloses a partial roll forming approach. Further, *Rallis* teaches away a combination with *Hermanson* as follows:

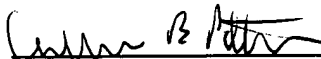
“[*Hermanson's*] coupling threads are partially completed by machine cutting and subsequently finished by roll-threading. The partial roll-threading induces very shallow compression stresses, about 0.003 inch deep, into the thread root.” (*Rallis*, col. 2, lines 26-30.)

“Further, by selective carburizing and ausquenching the coupling, the case 23 that develops is much deeper, greater than 0.003 inch, as compared to the [*Hermanson*] et. al. method in which the case depth is only about 0.003 inch after cold rolling by mechanical means. (*Rallis*, col. 8, lines 26-30.)”

Therefore, claim 1 is patentable over *Rallis* and *Hermanson*. Claims 3-9 and 24-27 are also patentable over *Rallis* and *Hermanson* since they depend from claim 1.

In conclusion, the references cited by the Examiner, alone or in combination, do not teach, show, or suggest the invention as claimed. Having addressed all issues set out in the office action, Applicants respectfully submit that the claims are in condition for allowance and respectfully request that the claims be allowed.

Respectfully submitted,



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